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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,913	12/11/2003	Liang Shao	HAM-10802/04	8487
25006	7590	03/01/2005	EXAMINER	
GIFFORD, KRASS, GROH, SPRINKLE & CITKOWSKI, P.C PO BOX 7021 TROY, MI 48007-7021			MCCALL, ERIC SCOTT	
			ART UNIT	PAPER NUMBER
			2855	

DATE MAILED: 03/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/733,913

Applicant(s)

SHAO ET AL.

Examiner

Eric S. McCall

Art Unit

2855

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 27 is/are allowed.
- 6) ☒ Claim(s) 1, 10, 11, 23 and 28 is/are rejected.
- 7) ☒ Claim(s) 2-9, 12-22, 24-26 and 29 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/15/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

THROTTLE POSITION SENSOR

FIRST OFFICE ACTION

SPECIFICATION

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. The Applicant's cooperation is requested in correcting any errors of which the Applicant may become aware in the specification.

CLAIMS

Objections

Claim 14 is objected to because the claim 14 centers around an error signal. However, claim 1 from which claim 14 depends makes no mention of any error signal. Instead, the error signal is introduced in claim 12.

35 U.S.C. § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 10, 11, 23, and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Hosoya et al. (5,743,132).

With respect to claim 1, Hosoya et al. teach a throttle position sensor for a throttle having a movable throttle element comprising:

an elongated electrically resistive strip (34) having a first end and a second end, said first end being electrically connected to a first voltage potential (35) and said second end being electrically connected to a second voltage potential (36), said first voltage potential being different than said second voltage potential (col. 4, lines 33-36),

an electrically conductive wiper (31) in sliding contact with said resistive strip, one of said wiper or said resistive strip being coupled to the movable throttle element so that the position of said wiper relative to said strip varies proportionately with the position of the throttle element (col. 4, lines 41-44) and so that a voltage at an output from said wiper varies proportionately with the position of the movable throttle element (col. 5, lines 32-34), and

a circuit (Fig. 3) which will determine a contact resistance between said wiper and said strip since said circuit is a voltage divider circuit with a potentiometer and thus such a resistance will be determined as a function of the voltage.

With respect to claim 10, Hosoya et al. suggest a buffer as claimed with the disclosure of resistance 44 in Fig. 3.

With respect to claim 11, the teaching of Hosoya et al. is interpreted as inherently having a microprocessor as claimed due to the fact that the taught system is part of an electronic control unit for an internal combustion engine and internal combustion engines are very well known to be operated via microprocessors.

With respect to claim 23, Hosoya et al. suggest a method for use with a throttle position sensor having an elongated resistive strip (34) with a first and second end, a wiper (31) in sliding contact with said strip, said wiper exhibiting a contact resistance with the strip, for determining the contact resistance comprising the steps of:

- applying a voltage to the first end of the strip (col. 4, lines 33-36),
- detecting the voltage (V_{cc}) at said first end of said strip,
- connecting a resistor (34) of predetermined resistance to said wiper,
- detecting the voltage drop across the resistor (col. 5, lines 18-26), and
- detecting the voltage at the contact between the wiper and the strip (col. 5, lines 32-34).

With respect to claim 28, Hosoya et al. teach a throttle position sensor for a throttle having a movable throttle element comprising:

an elongated electrically resistive strip (34) having a first end and a second end, said first end being electrically connected to a first voltage potential (35) and said second end being electrically connected to a second voltage potential (36), said first voltage potential being different than said second voltage potential,

an electrically conductive wiper (31) in sliding contact with said resistive strip, one of said wiper relative or said resistive strip being coupled to the movable throttle element so that the position of said wiper relative to said strip varies proportionately with the position of the throttle element and so that a voltage at an output from said wiper varies proportionately with the position of the movable throttle element (col. 4, lines 41-44), and

a circuit which determines a resistance of said resistive strip between said first end and said second end (Fig. 3).

Allowable Subject Matter

Claims 2-9, 12, 13, 15-22, 24-26, and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims because of the following:

Claim 2 (and thus claims 3-9) has been found to contain allowable subject matter because the prior art fails to teach or suggest a processing circuit connected to the output signals from the first and second voltage detectors (as defined by the claim) and the first voltage potential which calculates the contact resistance as a function of the first and second voltage detector output signals and the first voltage potential,

in combination with the remaining limitations of said claim.

Claim 12 (and thus claim 13) has been found to contain allowable subject matter because the prior art fails to teach or suggest a microprocessor which compares the calculated contact resistance (as defined by the claim) and generates an error signal when the calculated contact resistance exceeds a predetermined threshold,

in combination with the limitations of the preceding claims from which claim 12 depends.

Claim 15 (and thus claim 16) has been found to contain allowable subject matter because the prior art fails to teach or suggest a second circuit which selectively measures resistance between the first end of the strip and the wiper and the second end of the strip and the wiper,

in combination with the limitations of claim 1 from which claim 15 depends.

Claim 17 (and thus claims 18-22) has been found to contain allowable subject matter because the prior art fails to teach or suggest circuitry which detects a voltage differential across the first, second, and third sensor resistors (as defined by the claim) attributable to the alternating current source and generates output signals representative of said voltage differentials and determining a contact resistance therefrom,

in combination with the remaining limitations of said claim.

Claim 24 (and thus claims 25 and 26) has been found to contain allowable subject matter because the prior art fails to teach or suggest minimizing current flow along the strip between the wiper and the second end of the strip and detecting the voltage at the second end of the strip,

in combination with the limitations of claim 23 from which claim 24 depends.

Claim 29 has been found to contain allowable subject matter because the prior art fails to teach or suggest a processing circuit connected to the output signals from the first, second, and third voltage detectors (as defined by the claim) and calculating the resistance of the resistive strip between the first and second ends as a function of the first, second, and third voltage detector output signals and the first, second, and third switches (as defined by the claim),

in combination with the remaining limitations of said claim.

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Claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and to overcome the above objection thereto because the prior art fails to teach or suggest that in response to an error signal, the circuit switches the outputs from the throttle position sensor to the redundant resistive strip and a redundant wiper,

in combination with the limitations of claim 1 from which claim 14 depends.

Claim 27 has been found to be allowable over the prior art because the prior art fails to teach or suggest iteratively determining the resistance between the wiper and each end of the strip, comparing the iteratively determined resistance values with a stored resistance value, and generating a warning based on a resistance difference,

in combination with the remaining limitations of said claim including the preamble which has been given patentable weight.

CITED DOCUMENTS

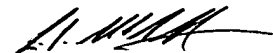
The Applicant's attention is directed to the enclosed "PTO-892" form for the prior art made of record at this time.

CONTACT INFORMATION

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Eric S. McCall whose telephone number is (571) 272-2183.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Eric S. McCall
Primary Examiner
Art Unit 2855
Feb. 22, 2005